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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/764,852	01/26/2004	Michio Tanimoto	2004-2123.ORI	9801
23165 7590 03/28/2007 ROBERT J JACOBSON PA 650 BRIMHALL STREET SOUTH ST PAUL, MN 551161511			EXAMINER CHO, JENNIFER Y	
			ART UNIT	PAPER NUMBER
			1621	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		03/28/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/764,852

Applicant(s)

TANIMOTO ET AL.

Examiner

Jennifer Y. Cho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2-4 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 10/06, 4/06, 8/04, 1/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

**Detailed Action**

- 1 This office action is in response to Applicant's communication filed on 3/8/2007.  
Claims 2-4 are pending in this application.

**IDS**

- 2 The information disclosure statements (IDS) filed on 1/26/2004, 8/9/2004, 4/11/2006, 10/15/2006 are acknowledged. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner.

**Claim Rejections – 35 USC 112**

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

- 3 Claims 2 and 3 are rejected under 35 U.S.C. 112, first paragraph, because of a scope of enablement issue. Applicant has not provided a discussion of any "component A" to support the claimed language. Some description of "component A" is mentioned in the specification (page 4, paragraph 5; page 5, paragraph 3; page 9, paragraph 1), but the Applicant has not clearly defined the composition of "component A". Thus, the specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with

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the absence of these limitations. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office Action.

Claims 2 and 3 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant has not provided a discussion of "component A" to support the claimed language.

#### **Claim Rejections - 35 USC 112**

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4 Claims 2 and 3 are rejected under 35 U.S.C. 112, second paragraph, as being confusing. Applicant has not clearly stated what "component A" means. Clarification is requested.

#### **Claim Rejections – 35 USC 103**

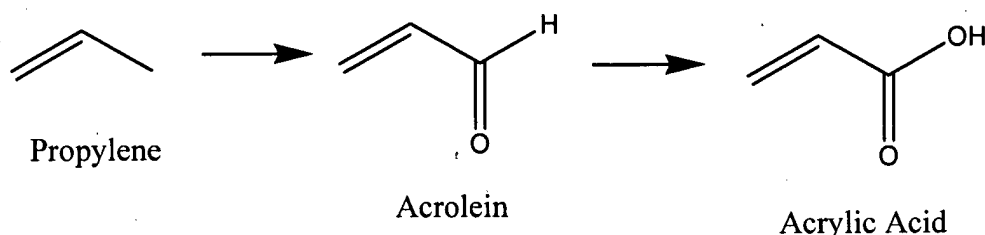
The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5 Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Kawajiri et al. (US 5,719,318), in view of Brockwell et al. (US 6,492,548).



Kawajiri et al. teaches a process for production of acrylic acid by carrying out a catalytic gas phase oxidation reaction of acrolein with molecular oxygen to produce acrylic acid, in the presence of a composite-oxide catalyst, which includes molybdenum, vanadium, tungsten, copper, iron, antimony, tin, titanium and zirconium (column 2, lines 15-41), meeting the limitations for applicant's composite-oxide catalyst.

6 Kawajiri et al. also teaches that the composite-oxide catalyst is packed into a fixed-bed multitubular reactor, in which the process includes the steps of dividing the inside of each reaction tube of the reactor in a tubular axial direction to form at least two reaction zones and then packing these reaction zones with the composite-oxide catalyst particles so that the amounts of the constituents decreases from the gas-inlet side of each reaction tube toward its gas-outlet side (column 2, lines 15-30).

7 Kawajiri et al. is deficient in that it does not teach the production of acrolein by oxidation of propylene with a composite-oxide catalyst that includes both molybdenum

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and bismuth using an acrylic acid absorbing column and an inert saturated hydrocarbon.

8 Brockwell et al. teaches a process for production of acrylic acid from the oxidation of propylene using a fixed-bed, tubular-flow reactor to form acrolein (column 6, lines 29-31), in which the mixed gas contains a high-concentration of propylene (column 5, lines 26-27), oxygen (column 5, lines 28-29) and an unreactive inert saturated hydrocarbon gases, e.g. methane, ethane, propane (column 4, lines 35-43), but does not have to contain steam (column 5, line 40; column 3, lines 16-17), including a catalyst which includes molybdenum and bismuth (column 4, lines 64-66). The resulting acrolein gas is further oxidized to acrylic acid using a composite-oxide catalyst which includes molybdenum and vanadium (column 6, lines 35-40). The acrylic acid can further be recovered by absorption (column 7, lines 11-14).

9 Therefore it would be prima facie obvious to one of ordinary skill in the art at the time of the invention, to use the two step process of Brockwell et al. in the oxidation of propylene to form acrylic acid, instead of the single step process of Kawajiri et al. to oxidize acrolein to form acrylic acid. The expected result would be the efficient oxidation of propylene to first acrolein and then to acrylic acid, as the final product, in high yield.


10 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer Y. Cho whose telephone number is (571) 272 6246. The examiner can normally be reached on 9 AM - 6 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman Page can be reached on (571) 272 0602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jennifer Cho  
Patent Examiner  
Art Unit: 1621

for   
S. Kumar  
Primary Examiner  
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Thurman Page,  
Supervisory Patent Examiner  
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